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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RICHARD, CHARLES R

ART UNIT PAPER NUMBER

1712

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,784

Applicant(s)

STILL ET AL.

Examiner

C. R. Richard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/27/03 to 5/10/04</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-20, drawn to a method of acid fracturing, classified in class 166, subclass 308.1.
- II. Claims 21-23, drawn to a method of acid release acceleration, classified in class 507, subclass 219.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, there is no step of contacting a mixture of acid-precursor and acid-reactive material with an aqueous fluid in Invention I as in Invention II, and they will have different modes of operation accordingly.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Applicant's agent, Thomas Mitchell, on September 13, 2005, a provisional election was made without traverse to prosecute the invention of group I (claims 1-20). Affirmation of this election must be made by Applicant in replying to this Office action. Claims 21-23 are withdrawn from further

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consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

2. The drawings are objected to because the title/legend of figure 1 refers to the dissolution of one mole of calcite which is a fixed amount, yet the graph shows amounts that vary.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 1 is objected to because of the following informalities. Applicant has numbered the claims using the format "[cX]", where X is the claim number; claim 1 has been numbered [c1] and "1." Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A "pressuring" step critical or essential to the practice of the invention ("[a] method of acid fracturing") is not included in the rejected claim(s) resulting in them not being enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Without a "pressuring" step, the method as claimed could be to any number of well treatments; a "pressuring" step (above the fracturing pressure) is required for the claims to be to a fracturing method.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 3 recites the limitation "the solid-reactive material is polylactic acid". There is no mention of "solid-reactive material" in the claims from which claim 3

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depends; that is, there is insufficient antecedent basis for this limitation in the claim. In addition, polylactic acid would seem to be an acid-precursor in this context anyway – this will be assumed in the rejections on the merits.

8. Claims 6-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant contrasts the solid acid-reactive material with itself in these claims, either directly (claims 6-7) or via dependency (claims 8-9). It appears that Applicant should have recited acid reactive material and precursor instead, and this will be assumed in the rejection on the merits.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-2 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Cantu et al. in US Patent 4,848,467. Cantu discloses a fracturing fluid and process.

Cantu teaches a hydraulic fracturing process using a fracturing fluid made up of an aqueous gel and a fluid loss additive (see column 2, lines 15-21). The fluid loss additive is a condensation product of hydroxyacetic acid with itself or with other compounds having hydroxy, carboxylic acid or hydroxycarboxylic acid moieties (see column 2, lines 21-26). These materials are solids and insoluble in both aqueous and hydrocarbon media, but will degrade into monomers (acids) at downhole temperatures in the presence of moisture (see Abstract and column 2, lines 25-40). The degradation products of the fluid loss agent act to break gel and can return a proppant pack to 100% of its potential permeability (see column 5, lines 3-21). The specific steps of the rejected claims are at least implied in the teachings of Cantu.

11. Claims 1-2, 4, 6-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cantu et al. in US Patent 4,986,354. Cantu teaches microencapsulated oil field chemicals.

The reference teaches compositions made by placing an oil field chemical in microcapsules made from condensation products of hydroxyacetic acid alone or with compounds containing other hydroxy, carboxylic acid or hydroxycarboxylic acid moieties such as lactic acid (see column 1, lines 37-47 and column 2, lines 8-15). The condensation products are solids and insoluble in aqueous and hydrocarbon media (see

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column 1, lines 50-65). A variety of oil field chemicals that fall in the class of solid acid reactive materials may be included in the capsules, and in particular, borates for fracturing fluids (see column 2, lines 42 to column 3, line 7). The microcapsules may be placed in an oil-based fluid (see column 3, lines 40-45); this fluid would effectively act as/form a hydrolysis-delaying coating for the capsules. The polymeric shell of the capsules degrades (to acids) in the presence of water at formation conditions (see column 3, lines 59-62). The steps of the rejected claims are at least implied in these teachings.

12. Claims 1-2, 10 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Casad et al. in US Patent 4,986,355. Casad discloses a fracturing fluid and process.

Casad describes a hydraulic fracturing process wherein particles of polyhydroxyacetic acid or a copolymer of hydroxyacetic acid and other hydroxy, carboxylic acid or hydroxycarboxylic acid containing monomers are formed in an inert organic liquid and used as a fluid loss agent and a gel breaker (see column 1, line 65 to column 2, line 40). The gels may act as proppant carriers (see column 1, lines 65-68). The polymers hydrolyze to form monomers (acids) (see column 3, lines 23-25). The inert organic liquid used may be diesel or mineral oil among others (see column 4, lines 22-25) which would of course provide a coating that would delay hydrolysis of the polymer particles. The compositions of Casad may be used in fracturing and acidizing (see column 5, lines 35-43) – of course, an acid fracturing would take place, since the

monomers produced are acids. The specific steps of the rejected claims are at least implied in the teachings of Casad.

13. Claims 1-2, 10-12, 14-16 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Volmer in US Patent 6,432,885. Volmer discloses well treatment and/or fracturing fluids and methods of using them.

Volmer teaches that a formation may be fractured by injecting a defined well fluid at sufficient pressure (see Abstract). The fluid may comprise several components including water, an acid forming compound and an alcohol (see Abstract).

It is preferable that the alcohol retard the hydrolysis reaction of the acid forming compound (see column 2, lines 60-65). The acid forming compound may be present at about 10 weight percent of the fluid among other amounts and ranges (see column 2, lines 55-60). The acid forming compound may be an ester, an anhydride, and acid halide or a polyglycolic acid or a mixture thereof (see column 3, lines 60-66). A proppant may be included (see column 4, lines 52-55). The hydrolysis step is at least implied in these teachings and would occur inherently (and as to claim 14 would produce an acid such as glycolic). Of course, the fracturing would be an acid frac given the acid forming compound produces acid.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. in US Patent 5,325,921 in view of Cantu et al. in US Patent 4,957,165.

Johnson teaches a hydraulic fracturing method wherein a fluid loss filter cake may be formed with calcium carbonate or metal hydroxides among others, and the filter cake is removed after the fracturing to permit production flow (see Abstract and column 4, lines 48-65). Johnson teaches all of the limitations of the rejected claims in proper context, except for the removal of the filter cake using a solid acid precursor.

Cantu teaches that calcium carbonate filter cake may be removed by acid and that a fluid loss control agent in well treating may be formed from a condensation product of hydroxyacetic acid and other fluid loss control agents (calcium carbonate being mentioned) (see column 1, lines 38-46; column 2, lines 3-5; and column 3, lines 27-29). The condensation product degrades to acid monomer in the presence of moisture at downhole conditions (see column 2, lines 39-45), so the filter cake formed will dissolve in the process.

From these teachings it would have been obvious to one of ordinary skill in the art to combine the methods and compositions of Johnson and Cantu such that a fracturing would be done using calcium carbonate and the condensation product as a self cleaning fluid loss control system. The frac would be an acid frac since acid is produced in this process. The steps of the rejected claims follow from this reasoning.

One of ordinary skill in the art would have found also found it obvious to use a metal hydroxide as mentioned in Johnson in place of the calcium carbonate in the combination just mentioned as these too are well known to dissolve in acid. Magnesium hydroxide and aluminum hydroxide are well known examples of these hydroxides.

16. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. in US Patent 5,325,921 in view of Cantu et al. in US Patent 4,957,165 and further in view of Lee in US Patent 6,817,414.

The combination of Johnson and Cantu was discussed above. There is no teaching of the use of polylactic acid in these references in the context of the rejected

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claims, but all the other limitations of the rejected claims are taught in proper context by these references either alone or in combination.

Lee teaches that polyglycolic acid as well as polylactic acid may be used to remove filter cake (see Abstract and column 3, lines 15-27).

From these teachings, it would have been obvious to one of ordinary skill in the art to use polylactic acid, instead of polyglycolic acid as taught by Cantu, in the context of the rejected claims, thus rendering these claims obvious to one of ordinary skill in the art.

Double Patenting

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 1 and 17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19, 23

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and 32 of copending Application No. 10/941,355. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claims 19, 23 and 32 of 10/941,355 recite methods within the scope of rejected claims 1, 17 and 1 respectively, rendering the rejected claims at least obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

19. Claims 1-2, 10, 14-15 and 17 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 6 and 15 of copending Application No. 10/941,384. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claims 1, 2, 3, 6, 15 and 15 (again) of 10/941,384 recite methods within the scope of rejected claims 1, 17, 2, 10, 14 and 15 respectively, rendering the rejected claims at least obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

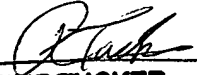
20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Methods at least similar to those of the present invention are found in US Patents 4,961,466; 5,439,057; 5,680,900; 6,509,301; and 6,818,594.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. R. Richard whose telephone number is 571-272-8502. The examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles R. Richard


PHILIP TUCKER
PRIMARY EXAMINER
ART UNIT 1712